

**Section I. REMARKS****Acknowledgement of Allowability of Claims 35, 38, and 40**

In the January 12, 2005 Office Action, the Examiner rejected claims 35, 38, and 40 for depending from rejected base claims, but stated that claims 35, 38, and 40 would be allowable if rewritten in independent form reciting all the limitations of the respective base claim and any intervening claim.

Applicant hereby acknowledges the allowability of claims 35, 38, and 40.

However, because claim 30, from which claims 35, 38, and 40 depend, is patentable over the Lammerink reference (U.S. Patent No. 6,370,950) cited by the Examiner in the January 12, 2005 Office Action, as explained in greater detail hereinafter, Applicant hereby elect to maintain claims 35, 38, and 40 in their current forms and requests the Examiner to first reconsider the patentability of claim 30, in light of the following arguments.

**Patentable Distinction of Claims 30-34, 36, 37, 39, and 41-45 Over the Lammerink Reference**

Claim 30, from which claims 31-40 depend, expressly required:

“A method of operating a semiconductor process including processing of or with a gas, said method comprising sensing concentration of a desired component of said gas with a thermopile detector, generating an output from said thermopile detector indicative of concentration of said selected component of said gas, and controlling one or more conditions in and/or affecting the semiconductor process, in response to said output.”

Claim 41, from which claims 42-45 depend, correspondingly requires the step of “sensing concentration of a desired component of said material with a thermopile detector.”

It is therefore clear that claims 30-45 all require use of thermopile for determination of the concentration of a desired component in a material.

In the January 12, 2005 Office Action, the Examiner rejected claims 30-34, 36, 37, 39, and 41-45 for being obvious under 35 U.S.C. §103(a) over Lammerink U.S. Patent No. 6,370,950, and asserted that Lammerink discloses a method comprising the step of "sensing concentration of a desired component of said gas with a thermopile detector" (see the Office Action, page 3, lines 1-2).

Applicant vigorously disagrees with the Examiner's assertion regarding the disclosure of the Lammerink reference.

The Lammerink reference only discloses a method for determining the flow rate, density and specific heat of a gas or fluid (see Lammerink, column 8, lines 44-47, and claims 1 and 2), and not the concentration of a desired component in the gas, contrary to the Examiner's assertion. Nothing in Lammerink teaches or suggests how to determine the concentration of a desired component in a gas.

Flow rate, density, and specific heat are physical properties that are fundamentally different from concentration.

Specially, flow rate is defined as "the volume of fluid which passes through a given area per unit time" (see Wikipedia, the Free Encyclopedia, at [http://en.wikipedia.org/wiki/Flow\\_rate](http://en.wikipedia.org/wiki/Flow_rate), as downloaded on April 12, 2005); density is defined as "the quantity of something per unit measure, especially per unit length, area, or volume" (see the American Heritage Dictionary of the English Language: Fourth Edition, 2000); and specific heat is defined as "the ratio of the amount of heat required to raise the temperature of a unit mass of a substance by one unit of temperature to the amount of heat required to raise the temperature of a similar mass of a reference material" (see the American Heritage Dictionary of the English Language: Fourth Edition, 2000). In contrast, concentration is defined as "the amount of a specified substance in a unit amount of another substance" (see the American Heritage Dictionary of the English Language: Fourth Edition, 2000). It is impossible to determine the concentration of a desired component of a gas based on mere knowledge about the flow rate, density, or specific heat of such gas.

Thus, the Lammerink reference teaches the use of thermopile detector only for determining the flow rate, density, and specific heat of a gas, and NOT the concentration of a desired component in a gas, contrary to the Examiner's assertion in the January 12, 2005 Office Action.

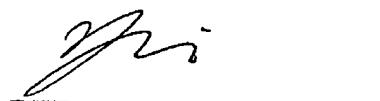
It is thus clear that **Lammerink** cannot be used to support a *prima facie* case of obviousness against Applicant's claimed invention in claims 30-34, 36, 37, 39, and 41-45, which expressly requires determination of the concentration of a desired component in a material by using the thermopile detector.

Based on the following, Applicant respectfully requests the Examiner to reconsider, and upon reconsideration to withdraw, the rejections of claims 30-34, 36, 37, 39, and 41-45.

The Office is hereby authorized to charge any fee or charge deemed properly payable in connection with the entry of this Amendment to Deposit Account No. 08-3284 of Intellectual Property/Technology Law.

In the event that any issues remain outstanding, incident to the formal allowance of this application, please contact the undersigned attorney at (919) 419-9350 to discuss their resolution, so that this application may be passed to issue at an early date.

Respectfully submitted,



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Yongzhi Yang  
Reg. No. 56310  
Attorney for Applicant

INTELLECTUAL PROPERTY/  
TECHNOLOGY LAW  
P.O. Box 14329  
Research Triangle Park, NC 27709  
Telephone: (919) 419-9350  
Fax: (919) 419-9354  
Attorney Ref: 2771-567 DIV